

I: Thunder Valley CDC: Climate Resiliency through Community Education and Empowerment

- A. This project proposes to build on the work that Thunder Valley CDC is doing around climate resiliency through the regenerative sustainable community that we are building. This community will be built on the foundation of the idea that climate change is something that we need to prepare for. We can do this by studying the impacts of the built environment, energy, solid waste, and developing sustainable systems of infrastructure. The reality is that these strategies are only as good as the community members understand them and take ownership. If we develop water reuse systems, recycling options, composting options, and an alternative sewer system, but no one in the community feels ownership of these systems or even understands how to use them or the importance of using sustainable systems, then the strategies become ineffective. Thunder Valley CDC has become a leader in creating sustainable systems changes on the Pine Ridge Indian Reservation and we do this through community engagement. The core of what we do stems from community and the importance of creating an ecosystem of opportunity at ground zero for poverty in the United States. Primary goals of Thunder Valley CDC since our founding have been to increase the capacity of our community members, through education, healthy life-ways, and revitalization of Lakota spiritual traditions. Our goals for the 34-acre development include a holistic plan to increase water quality for not only its residents but also for people and habitat downstream as well as using water, land, energy, and materials conservatively and sustainably.
- B. Thunder Valley CDC aims to:
 - 1. Develop a program curriculum to educate community members about the impact of climate change and the importance of resiliency.
 - 2. Engage the community in climate resiliency and the strategies to prepare for climate change as a community.
 - 3. Launch program curriculum to local schools and at Thunder Valley CDC to educate community about resiliency and solid waste decrease.
- C. This Project will take place on the Pine Ridge Indian Reservation at the Thunder Valley Community Development Corporation which is located in Porcupine, South Dakota, 57772.
- D. The environmental statutes related to this project are the Solid Waste Disposal Act.
- E. The project is focused on community climate resiliency because we are developing a regenerative and resilient community by looking directly at strategies and systems that will create climate resiliency. The lessons we learn in developing the Thunder Valley CDC community will directly inform the tribal government and other development/infrastructure decisions made on the Pine Ridge Indian Reservation. This project aims to create an empowering and educational curriculum for the community to take hold of our own decisions based on resiliency.

II:Environmental, Public Health and Community Climate Resiliency (if applicable) information about the Affected Community

- A. Public health problems impact the Lakota people from birth to death. Infant mortality rates among Native Americans are more than twice the rate among other populations in South Dakota and nearly twice the national average. Life expectancy on the Pine Ridge Reservation is the lowest within the United States, 48 years for men and 52 years for women. As in other Native American communities, diabetes is rampant, impacting almost half of adults over age 40. Within South Dakota, Native Americans have 30% higher cancer death rates than non-Indians. This is partly because cancers are not discovered until they are further progressed. On the Pine Ridge Reservation, high cancer rates were linked to radioactive water by a 1979 study, but the population is too small to do a proper epidemiological study. This situation provides a classic violation of the principle of environmental justice, with an extremely poor population being negatively impacted by activities that benefit other populations. The impacts are particularly severe because communities have little resilience due to extreme poverty, existing public health problems, and poor health facilities.

Developing resilience through adaptation to climate change will be critical in the years to come. Climate change is already impacting the Great Plains region, with increasing drought and stresses to agriculture, natural lands, and wildlife. If current practices are not changed, people in our area can expect 30 more days per year

- B. Thunder Valley CDC has been very successful in achieving results from the efforts to address the local environment and climate resiliency. We began our community engagement efforts in 2012 when we started this idea of a model regenerative community development. Since then we engaged our community in learning about what sustainability means. Many community members now believe in the importance of climate resiliency. They are open and want to learn about new systems and ways of living. We also successfully operated a community garden to teach people about healthy eating and the local environment through food growth and consumption. We have also engaged South Dakota USDA-Rural Development staff in conversations about choosing more resilient systems for this area. We did extensive research about resilient water and sewer systems for this area specifically to choose the most sustainable for this community.
- C. The affected community is the Pine Ridge Reservation, which encompasses all of Shannon County. Shannon County consistently ranks in five poorest counties in the United States. This community is home of the Oglala Sioux Tribe. While many other rural areas in the Great Plains are facing stagnant growth, the population on the Pine Ridge Indian Reservation is growing significantly. Even though the Census figures are widely understood to undercount the population on the Reservation, they still show a growth rate of more than 21% between 200 and 2010- nearly three times the growth rate of South Dakota. More than half of Pine Ridge residents are under the age of 25. This population growth underpins an existing and growing demand for housing and services on the reservation. This increases the importance of climate resiliency as we prepare for the younger generations

However, the construction of new housing has not kept pace with the increasing need. Land fractionation, complicated property ownership, lack of available land, and limited access to financing all present barriers to the construction of new housing. In addition to financial and regulatory obstacles, affordability is a factor that limits access to quality housing for many. The median household income on the Pine ridge Indian Reservation is \$27,065, compared

to the state median income of \$46,369. About 48% of residents on the reservation live below the poverty line. These low income severely limit the availability and quality of housing for our community. Out of approximately 4,700 total households, 3,300 (70%) are eligible for Oglala Sioux Lakota Housing services, which estimates that there are unmet housing needs for more than 1,600 low-income families.

- D. Lack of supply and low incomes contribute to overcrowding, low quality construction, and poor housing conditions. The average household size on the reservation is between 6.7 and 9.2 persons, compared to a national average of 2.6 persons per household. While this reflects to some degree differences in native family structures, it is also an indication of overcrowding. Homes without adequate plumbing or kitchen facilities are often used as an indicator of inadequate housing conditions. On the reservation 9% of units lack adequate plumbing and 8% lack kitchen facilities; the national average for these conditions are .5% and .8% respectively. Water on the reservation has been tainted by Uranium mining and tests have shown the presence of Arsenic and Barium among other radioactive elements. Mni Wiconi, which means “water is life” in the Lakota language, is a large scale water infrastructure project that carries water to the reservation through pipelines from the Missouri River. Water on the reservation has been tainted by Uranium mining and tests have shown the presence of Arsenic and Barium among other radioactive elements. Mni Wiconi, which means “water is life” in the Lakota language, is a large scale water infrastructure project that carries water to the reservation through pipelines from the Missouri River. This model is not projected to be a sustainable model. A new model of caring for our water is needed and this development seeks to provide that replicable model for the Reservation and other tribal nations.
- E. The affected community will benefit from the results of this project because they will be able to take ownership of strategies to mitigate the climate change and health risks that affect them. For hundreds of years, solutions have been prescribed to Native Americans, specifically on the Pine Ridge Reservation. Thunder Valley CDC has been a crucial organization in turning that around so that our community members are prescribing their own solutions to reservation wide problems. This project will build the capacity of our own community by starting a dialogue about climate resiliency, water use, and solid waste. This dialogue will educate and empower our community members to take actions to create a healthier environment and more resilient community.

III: Organization’s Historical Connection to the Affected Community

- A. Thunder Valley CDC is a community development corporation that was created by members of the community we serve. The organization was created in 2007. The mission of the organization is “Empowering Lakota youth and families to improve the healthy, culture and environment of our communities, through the healing and strengthening of cultural identity”. Under that mission, our organization has continued to evolve as the needs and wants of the community develop through listening and engagement meetings. We realized that the only way the status quo on the reservation would change is through a ground up approach. There is a lack of infrastructure on the reservation and the way to build infrastructure is to build capacity through a systems approach.
- B. Thunder Valley CDC is creating a regenerative community. A regenerative community needs to address all aspects of people, the planet, and prosperity (meaning community wealth). In

addressing the systemic issues on the reservation we have worked with our community to address local environmental, public health issues and community climate resiliency. Thunder Valley CDC has worked with the community around gardening and sustainable food systems. We are also in the process of creating a One Planet Action Plan with the community. This action plan will lead to our One Planet Community Endorsement, but more importantly is a set of principles that the community agrees to live by. The community sets feasible goals to move towards ideas of sustainability and climate change resiliency.

- C. The residents of this community are part of the decision making process because the entire staff at Thunder Valley CDC lives in this community and over 80% of the staff is enrolled in the Oglala Sioux Tribe. We are very experienced at community organizing, our community is at the root of all the decisions we make. We frequently have community engagement and listening meetings to find out what our community wants and needs. Our community engagement coordinator actively informs our community about any updates we have or progress we have made.
- D. Most recently, Thunder Valley CDC hosted a One Planet Community Action Plan meeting. This creates a plan of action to live in a resilient community. In order to create this action plan the community members take ownership of the process and learn about ways to live in a way that uses less and wastes less. We work closely with other organizations in the community such as the Oglala Sioux Tribe Housing Authority. We also work with a coalition called Sustainable Home Ownership Project, that we created to help inform local organizations about living sustainably and creating opportunities for community members to learn about climate resilience in regards to housing.
- E. Thunder Valley CDC is part of the affected community. Our employees are community residents. We maintain an ongoing relationship with community members by being transparent and keeping them informed. We host a weekly radio show, which is the best way to reach the largest amount of community members. We hold community planning meetings and empower community members to make decisions about this community. We actively partner with other local organizations to try to build the capacity of all organizations.

IV: Project Description

This project aims to educate the community on the Pine Ridge Reservation, specifically at Thunder Valley CDC about the sustainable systems chosen for the regenerative community development. While the community has expressed interest in living more sustainably in response to climate change, many community members do not know ways to go about doing this. Thunder Valley CDC can be considered a living, learning laboratory for community members. For those who will live at the regenerative community, this project will allow them to understand how to use the chosen systems and how to live up to the ten One Planet principles. For the community members who do not live at the regenerative community, they will be able to use some of these strategies in their own neighborhoods, homes, and schools.

The focus of this project is community climate resiliency education, this connects to both environmental and public health. By creating communities that understand climate change resiliency, we are improving environmental disparities and public health at ground zero for poverty in the United States.

Goal: *To educate local community members about strategies towards sustainability and climate resiliency.*

We will achieve our goal and objectives by completing the following work plan. This work plan is also laid out in our attached logic model.

Objective 1: *In 6 months re-engage at least 40 community members to continue their interest and involvement in climate resiliency.*

Activity Timeline:

1. Host community engagement meeting to inform the community about the role out of this project. At this meeting we will also update the community about the status of past projects surrounding sustainability and will update them on the status of the regenerative community.

(Month 1)

2. Inform SHOP (Sustainable Home Ownership Project) partners about this project and engage them in this learning process so that they will be able to disseminate the information to the clients they work with, especially those who are potential homeowners at Thunder Valley CDC. (Month 1-2)

Objective 2: *In one year, develop a program curriculum to educate community members about the impacts of climate change, the importance of sustainability, and strategies towards creating environmentally resilient communities.*

Activity Timeline:

1. Identify community key knowledge gaps about climate resiliency including specifically knowledge of waste reduction and water reclamation systems.

(Month 2-3)

2. Research educational strategies regarding climate resiliency, waste reduction, and water reclamation for a range of ages to engage all community members.

(Month 3-4)

3. Work with consultants to outline curriculum to increase community knowledge about the sustainable strategies that are chosen for the regenerative community development at Thunder Valley CDC.

(Month 5-6)

4. Develop clear, understandable, engaging, and hands on curriculum with consultants.

(Month 6)

Objective 3: *In one year, launch program curriculum at Thunder Valley CDC and engage at least 30 students and 30 community members to take part in this curriculum to better educate our community about climate resiliency including water use and solid waste decrease.*

Activity Timeline:

1. Identify potential schools to use curriculum and take class trips to Thunder Valley CDC to participate in the hands on curriculum.

(Month 7-8)

2. Further engage community members by hosting another community meeting to share information about the new curriculum

(Month 7-8)

3. Partner with local school

(Month 8)

4. Launch curriculum.

(Month 9)

5. Host a community learning day to share the curriculum with the community and begin educating more community members about climate resiliency strategies by using hands on examples at Thunder Valley CDC.

(Month 10)

6. Host a school learning day to share the curriculum with students and teachers and begin educating more students about climate resiliency strategies by using hands on examples at Thunder Valley CDC.

(Month 11)

7. Visit the school to follow up with teachers on ways to continue the process using the curriculum developed.

(Month 12)

8. Continue to use the curriculum to education interested community members, creating a sense of ownership beyond the community members that work at Thunder Valley CDC.

(Month 12)

This project is designed to educate the community members by creating a curriculum and hosting hands on engagement demonstration days to teach the curriculum to the community. This will in turn empower them because they will have an increase in knowledge about climate resiliency and what it means to live sustainably. The curriculum will be primarily hands on, therefore enabling the community members to go out and do what they learned at Thunder Valley CDC. The hope is that they will feel empowered to teach other community members about what they learned and a ripple effect will take place. This will increase our community's capacity to be actively engaged in making decisions about local environmental and community climate resiliency issues. They should feel empowered to talk to their local district representatives about ways to implement the new strategies they learned about.

This project is related to:

- Safe Drinking Water Act, Section 14421(3)
- Solid Waste Disposal Act, Section 8001(a)

This project will provide the community with education about both the water reuse system at Thunder Valley CDC as well as other water conservation strategies based on our area. The curriculum will also address solid waste reduction and the health effects that will be affected as a result of better waste elimination. Demonstrations and trainings will be a major part of the curriculum developed. At least 30 students will participate in the learning demonstration day held at Thunder Valley CDC. At least 30 community members will participate in the learning demonstration day held at Thunder Valley CDC.

ii. Thunder Valley is partnered with BNIM and Pyatt Studios to design the regenerative community. BNIM is the master planning firm and Pyatt Studios is the selected architect for single family homes. BNIM has been a crucial partner in selecting the sustainable strategies specifically in this climate, in this community. We have had a partnership with BNIM since 2012 and they are committed to finding strategies that are both sustainable and affordable. We are building a community that needs to be resilient in the face of climate change while maintaining affordable costs so that our community can afford homeownership. Pyatt Studio is also a part of that. They design affordable and sustainable homes that are culturally appropriate. It is imperative that both of these partners are involved in the curriculum

planning and demonstration days to educate the community on these strategies. Pyatt Studio and BNIM are committed to Thunder Valley CDC for the long term. We maintain our partnership primarily through foundation funding. Our partners are invested much further than getting income. Our partnership is driven by their belief in our mission and the development of the regenerative community. Even further they are committed because of their belief in creating an environmentally just society and creating climate resilient communities. These partners are part of what we call our design team. The design team helps inform the decisions we make as an organization. Thunder Valley CDC is successful as an organization because we invest in strong partnerships that help build the capacity of our organization and of our community.

We have also created a partnership that we call the Sustainable Home Ownership Project. This is a partnership that we have with other local organizations invested into sustainable home ownership on the Pine Ridge Reservation. The SHOP partners include:

- Thunder Valley CDC
- The Lakota Funds
- Lakota Federal Credit Union
- Mazaska Owecaso Otipi Financial
- Oglala Sioux Lakota Housing Authority
- Oglala Sioux Tribe Partnership for Housing

SHOP partners recognize that each of our organizations focuses on at least one aspect of the homeownership process. These steps include outreach, education, intake, preparation (including IDA's), homeownership financing applications, addressing land issues, providing infrastructure, financing, identifying a home for purchase, and closing on a loan. For the purposes of this project, the SHOP partners will help to promote and increase community outreach. This will help inform the community members about the educational opportunities that are available at Thunder Valley CDC.

V: Organizational Capacity and Programmatic Capability

Thunder Valley CDC uses Quickbooks to manage, expend, and account for Federal Funds. Our Director of Finance is very experienced in managing federal grants. She is currently managing two \$500,000 federal grants for Thunder Valley CDC's programs through the Administration of Native Americans. Thunder Valley CDC has successfully managed these projects in the past by keeping organized data about the success and failures of each project. Evaluation is an important piece of every project we run. We keep up to date records of every grant that we manage.

We will effectively manage and successfully complete this proposed project by relying on our past experience. Thunder Valley CDC has 8 years of experience in managing grants and successful programs/projects. Through this experience we know what works well in program management and what does not. The Project Manager has an MSW in Program Administration specifically, therefore is knowledgeable about running effective programs.

VI: Qualifications of the Project Manager

The project manager has worked with Thunder Valley CDC for a year. Liz Welch is the Director of Development at Thunder Valley CDC and is committed to environmental justice and the idea of creating a community in which the members of that community are empowered to make their own decisions regarding climate resiliency. Liz Welch has a Master's in Social Work with an emphasis in Community

Organizing, Planning, and Administration. She is experienced at grant reporting, especially evaluation reporting. She has worked closely with our partners at BNIM and Pyatt Studios and has developed a strong relationship with them. She actively seeks out opportunities to develop the capacity of community members to develop their understanding of waste reduction and water use.

Liz Welch lives in this community, in Porcupine, SD. She is dedicated not only to the success of Thunder Valley CDC, but to the success of the greater community because it is her home. Liz's interest in community climate resilience stems from her belief that we need to stabilize this community's environment for the youth to live healthy lives. Liz served as a science teacher and college counselor at Red Cloud Indian School. She has experience in education and curriculum development. This experience with curriculum development and education will provide her with the necessary skills to develop a curriculum for this project. With the support of BNIM and Pyatt Studios, Liz will develop a strong curriculum that can be used to educate not only community members, but students at local schools. She is a part of the leadership team at Thunder Valley CDC and has worked with the community in past engagement sessions.

VII: Past Performance in Reporting on Outputs and Outcomes.

Northwest Area Foundation-14-G6062; Good Jobs Through Sustainable Home Ownership; \$500,000; Justin Huenemann, jhuenemann@nwaf.org

Bush Foundation- 30556; Community Innovation; \$200,000; Coya White Hat-Artichoker, cwhitehatartichoker@bushfound.org

Threshold Foundation-THO14-00032; Thunder Valley Regenerative Community Engagement Project; \$38,500; Doug Seckinger, threshold@tides.org

Catholic Campaign For Human Development- 928872; Community Engagement; \$45,000; Katie Collins, kcollins@jcv.org

We documented the progress towards achieving the outcomes through turning in grant reports to ensure that we are meeting our goals and objectives outlined in each grant agreement. It is very important to us to document and report on both project successes and failures because we want our project to be a replicable model for other communities.

Thunder Valley CDC has made progress in each of the grant agreements mentioned above.

VIII: Quality Assurance Project Plan

We do not believe that our project will involve the use of existing environmental data or the collection of new data.